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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,630	06/28/2001	Seigi Aoyama	3008-28	4486

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EXAMINER


DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.		Applicant(s)	
	09/892,630		AOYAMA ET AL.	
	Examiner		Art Unit	
	Tuan T Dinh		2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 02 April 2004.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 2,4,5,7 and 14-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 2,4,5,7,14-19 and 23 is/are rejected.

7) ☒ Claim(s) 20-22 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2, 4-5, 7, 14-16, and 20-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The mere absence of a positive recitation is not basis for an exclusion. Any claim containing a negative limitation, which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. Note that a lack of literal, see MPEP 2173.05(i).

The specification does not described and is improper to disclose of "antimony is not intentionally added to said alloy composition" in claims 2, 4, 15, and 23, and "said alloy composition and said plating exclude antimony" in claims 20-22. In applicant's response, they even state that the antimony is not mentioned anywhere in the specification (Remarks, 04/02/04, 4-5th paragraphs). Also, there is no support and suggest in the disclosure to mention these limitations as described in the specification.

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3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 4-5, 7, 14-16, and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 2, 4, 15, and 23, the phrase of "antimony is not intentionally added to said alloy composition" is not understood. What does applicant mean of "not intentionally added." Does applicant mean the amount of the antimony is 0% or within a range of 0.5-2%?

By apply in art, examiner assumes that the amounted of the antimony is 1% added to the alloy composition or plating because it is very small of amount to add to the composition and plating.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 2, 14-17, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuzaki (JP-03255637 A, hereafter JP)

Regarding claim 2, JP discloses a solder (an abstract) comprising:

an alloy composition containing: 0.002-0.015% by mass of phosphorus (0.01 to <1.0% by mass), and antimony is 1% by mass with the balance consisting of tin, wherein said alloy excludes bismuth (Bi).

Regarding claim 14, JP discloses the solder in the abstract the alloy composition further containing: 2.0 to 5.0% by mass of silver (Ag-0.5-6.0% by mass) and 0.01 to 2.0% by mass of copper (Cu-1.0% by mass).

Regarding claims 15-16, and 19, JP discloses the solder as explained in claims 2 and 14, the abstract of JP discloses the solder comprising:

0.002-0.015% by mass of phosphorus (P);

2.0-5.0% by mass of silver (Ag);

0.01-2.0% by mass of copper (Cu);

1% by mass of antimony;

tin, wherein the alloy composition excludes bismuth, and the tin forms the balance of the composition.

Regarding claims 17 and 23, JP discloses the solder as explained in claims 2 and 14, the abstract of JP discloses the solder consisting essentially of (equivalent to comprising):

0.002-0.015% by mass of phosphorus (P);

2.0-5.0% by mass of silver (Ag);

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0.01-2.0% by mass of copper (Cu); and
tin.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-5, 7, and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Kenji et al (hereafter PA, figures 1 and 2 submitted by applicant) in view of Matsuzaki (JP-03255637 A, hereafter JP).

Kenji discloses a connection lead as shown in figures 1-2 comprising:

a copper strip (1) or other strip conductor; and

a plating (2a, 2b) provide on at least one side of the strip conductor, said plating being formed of a lead-free solder composed mainly of tin, and has a shape such that the plating in a widthwise direction of the strip conductor having a bulge formed of an arc, a triangle, or stairs as viewed in section with an apex being located at a proper position in the widthwise direction of the strip conductor.

Kenji does not show said plating containing 0.002 to 0.015% by mass of phosphorus, 2.0-5.0% by mass of silver, 0.01-2.0% by mass of copper, with the balance consisting of tin excluding bismuth.

JP teaches a solder containing 0.002 to 0.015% by mass of phosphorus, 2-5% by mass of silver, 0.01-2% by mass of copper, 1% by mass of antimony, and balance of tin excluding bismuth.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching's JP to employ the connection lead of PA for the purpose of improving thermal fatigue characteristic of a solder.

Allowable Subject Matter

9. Claims 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 20-22 are allowable because the references do not suggest the combination with said alloy composition or said plating excludes antimony.

Response to Arguments

10. Applicant's arguments filed April 02, 2004 have been fully considered but they are not persuasive.

Applicant argues:

(a) JP reference does not teach or disclose that "antimony is not intentionally added to said alloy composition."

(b) Claim 17 recites an alloy composition consisting essentially of phosphorus, silver, copper, and tin. Hence, the alloy composition does not include antimony. However, the JP reference does disclose antimony.

Examiner disagrees.

Response to argument (a), applicant is amended and added the new limitations of "antimony is not intentionally added to said alloy composition or said plating" not persuasive because it is a new matter, and further the specification does not support or proper to include the limitation of "antimony is not intentionally added to said alloy composition." For example, in pages 17 and 19 of the instant application that the disclosure does not mention or suggest the alloy composition exclude the antimony or the antimony is not intentionally added to said alloy composition or plating. The JP reference discloses the very small amount of antimony in the alloy composition, the antimony is well know in the art, which is a silver white solid, to provide a thermal conductivity, see an attached paper of Hawley's Condensed Chemical Dictionary.

Response to argument (b), it is incorrect.

In section 2111.03 Transitional Phrases define:

The transitional phrases "**comprising**", "consisting essentially of" and "consisting of" define the scope of a claim with respect to what unrecited additional components or steps, if any, are excluded from the scope of the claim.

The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Genentech, Inc. v. Chiron*

Corp., 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts").

The transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. *In re Gray*, 53 F.2d 520, 11 USPQ 255 (CCPA 1931); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("consisting of defined as "closing the claim to the inclusion of materials other than those recited except for impurities ordinarily associated therewith"). A claim which depends from a claim which "consists of the recited elements or steps cannot add an element or step. When the phrase "consists of appears in a clause of the body of a claim, rather than immediately following the preamble, it limits only the element set forth in that clause; other elements are not excluded from the claim as a whole. *Mannesmann Demag Corp. v. Engineered Metal Products Co.*, 793 F.2d 1279, 230 USPQ 45 (Fed. Cir. 1986).

The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original) (Prior art hydraulic fluid required a dispersant which appellants argued was excluded from claims limited to a functional

fluid "consisting essentially of certain components. In finding the claims did not exclude the prior art dispersant, the court noted that appellants' specification indicated the claimed composition can contain any well-known additive such as a dispersant, and there was no evidence that the presence of a dispersant would materially affect the basic and novel characteristic of the claimed invention., The prior art composition had the same basic and novel characteristic (increased oxidation resistance) as well as additional enhanced detergent and dispersant characteristics.). **"A consisting essentially of claim occupies a middle ground between closed claims that are written in a consisting of format and fully open claims that are drafted in a comprising' format."** PPG Industries v. Guardian Industries, 156 F.3d 1351, 1354, 48 USPQ2d 1351, 1353-54 (Fed. Cir. 1998). See also Atlas Powder v. E.I. duPont de Nemours & Co., 750 F.2d 1569, 224 USPQ 409 (Fed. Cir. 1984); In re danakirama-Rao, 317 F.2d 951, 137 USPQ 893 (CCPA 1963); Water Technologies Corp. vs. Calco, Ltd., 850 F.2d 660, 7 USPQ2d 1097 (Fed. Cir. 1988). For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, **"consisting essentially of" will be construed as equivalent to "comprising."** See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 ("PPG could have defined the scope of the phrase consisting essentially of for purposes of its patent by making clear in its specification what it regarded as constituting a material change in the basic and novel characteristics of the invention."). See also In re Janakirama-Rao, 317 F.2d 951, 954, 137 USPQ 893, 895-96 (CCPA 1963). If an applicant contends that additional steps or

materials in the prior art are excluded by the recitation of "consisting essentially off" applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. In re De Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See also Ex,narte Hoffman, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Inter. 1989) ("Although consisting essentially of is typically used and defined in the context of compositions of matter, we find nothing intrinsically wrong with the use of such language as a modifier of method steps... [rendering] the claim open only for the inclusion of steps which do :not materially affect the basic and novel characteristics of the claimed method. To determine the steps included versus excluded the claim must be read in light of the specification [I]t is an applicant's burden to establish that a step practiced in a prior art method is excluded from his claims by consisting essentially of language.'.

Therefore, claim 17 recites "consisting essentially of" will be construed as equivalent to "comprising." Thus, the alloy composition comprising some small amount of antimony in which illustrated by JP reference as explained above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Dinh
June 02, 2004.

David A. Zaneke
David A. Zaneke
Primary Examiner
6/7/04